Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1 to 4 (Canceled)

1 ~~5~~. (Original) A staphylococcal alpha hemolysin (αHL) polypeptide comprising at least two non-consecutive heterologous amino acids in a stem domain of said polypeptide, wherein each of said heterologous amino acids binds a metal.

2 ~~6~~. (Original) The polypeptide of claim ~~5~~ 1, wherein said amino acids occupy two or more of the following positions of SEQ ID NO: 1: 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147 or 149.

3 ~~7~~. (Original) The polypeptide of claim ~~5~~ 1, wherein said amino acids occupy two or more of the following positions of SEQ ID NO: 1: 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148.

4 ~~8~~. (Original) The polypeptide of claim ~~5~~ 1, wherein said polypeptide comprises at least three non-consecutive heterologous amino acids in the stem domain of said polypeptide.

5 ~~9~~. (Original) The polypeptide of claim ~~5~~ 1, wherein said polypeptide comprises at least 4 non-consecutive heterologous amino acids in the stem domain of said polypeptide.

6 ~~10~~. (Original) The polypeptide of claim ~~9~~ 5, wherein said amino acids occupy positions 123, 125, 133, and 135 of SEQ ID NO: 1.

7 ~~11~~. (Original) The polypeptide of claim ~~10~~ 6, wherein said polypeptide is 4H.

8 ~~12~~. (Presently Amended) A mutant staphylococcal alpha hemolysin polypeptide comprising a heterologous amino acid, wherein the heterologous amino acid binds an analyte and wherein the polypeptide assembles into a heteroheptameric pore assembly in the presence of a plurality of wild type staphylococcal alpha hemolysin polypeptides ~~The polypeptide of claim 1~~, and wherein ~~said~~ the amino acid is selected from the group consisting of Ser, Thr, Met, Trp, and Tyr.

9 ~~13~~. (Presently Amended) A mutant staphylococcal alpha hemolysin polypeptide comprising a heterologous amino acid, wherein the heterologous amino acid binds an analyte and wherein the polypeptide assembles into a heteroheptameric pore assembly in the presence of a plurality of wild type staphylococcal alpha hemolysin polypeptides ~~The polypeptide of claim 12~~, and wherein ~~said~~ the amino acid is selected from the group consisting of Glu, Asp, Cys, His.

10 ~~14~~. (Original) The polypeptide of claim ~~13~~ 9, wherein said amino acid is His.

11 ~~15~~. (Original) A staphylococcal alpha hemolysin (αHL) polypeptide comprising at least two non-consecutive heterologous amino acids in a stem domain of said polypeptide, wherein each of said heterologous amino acids binds an organic molecule.

12 ~~16~~. (Original) The polypeptide of claim ~~15~~ 11, wherein said organic molecule is an explosive.

13 ~~17~~. (Original) The polypeptide of claim ~~15~~ 11, wherein said amino acids occupy two or more of the following positions of SEQ ID NO: 1: 111, 113, 115, 117, 119, 121, 123, 125, 127, 129, 131, 133, 135, 137, 139, 141, 143, 145, 147 or 149.

13 ~~18~~. (Original) The polypeptide of claim 12 ~~16~~, wherein said polypeptide is 123W/125W.

15 ~~19~~. (Presently Amended) The polypeptide of claim 11 ~~15 1~~, wherein said polypeptide further comprises a third ~~second~~ heterologous amino acid at a site distant from said stem domain.

16 ~~20~~. (Presently Amended) The polypeptide of claim 15 ~~19~~, wherein said third ~~second~~ heterologous amino acid is a Cys residue at position 292 of SEQ ID NO: 1.

21 to 25 (Canceled)

17 ~~26~~. (Presently Amended) A heptomeric pore assembly comprising a mutated staphylococcal αHL polypeptide (MUT), wherein the MUT ~~The pore assembly of claim 21, wherein said analyte-binding αHL polypeptide~~ is 123W/125W.

27 to 29 (Canceled)

18 ~~30~~. (Presently Amended) A digital biosensor device comprising a heptomeric pore assembly comprising a mutated staphylococcal αHL polypeptide (MUT), wherein the MUT is an analyte-binding αHL polypeptide comprising ~~The device of claim 29, wherein said analyte-binding αHL polypeptide comprises~~ at least two nonconsecutive heterologous amino acids in the stem domain of the polypeptide, wherein each of ~~said~~ the heterologous amino acids binds a metal.

22 ~~31~~. (Presently Amended) A digital biosensor device comprising a heptomeric pore assembly comprising a mutated staphylococcal αHL polypeptide (MUT), wherein the MUT is an analyte-binding αHL polypeptide comprising ~~The device of claim 29, wherein said analyte-~~

~~binding αHL polypeptide comprises~~ a chelating molecule in the stem domain of ~~said~~ the polypeptide.

19
~~32~~. (Presently Amended) The device of claim 18 ~~29~~, wherein said device detects binding of a metal ion to said analyte-binding αHL polypeptide.

20 19
~~33~~. (Original) The device of claim ~~32~~, wherein said device detects a single channel current.

21 19
~~34~~. (Original) The device of claim ~~32~~, wherein said device detects a current through two or more channels

35 to 45 (Canceled)

23 22
~~46~~. (New) The device of claim ~~31~~, wherein said device detects binding of a metal ion to said analyte-binding αHL polypeptide.

24 23
~~47~~. (New) The device of claim ~~46~~, wherein said device detects a single channel current.

25 23
~~48~~. (New) The device of claim ~~46~~, wherein said device detects a current through two or more channels